

Appl. No. : 09/771,673
Filed : January 29, 2001

REMARKS

Response to Restriction Requirement

Applicants affirm the election of Claims 15-20. This election is made without traverse.

Added Claims

Applicants have added Claims 21-24 to more clearly recite the etching gases. Applicants respectfully submit that the amendments are clearly supported by the application as filed and introduce no new matter.

Claim Rejections

In the December 10, 2002 Office Action, the Examiner rejects independent Claim 15 as being anticipated by Tohru (EPO 0335313) or Izumi (U.S. Patent No. 5,022,961). The Examiner rejects dependent Claims 17 and 18 as being anticipated by Tohru, and dependent Claims 16, 18 and 19 as being anticipated by Izumi. Further, the Examiner rejects Claim 20 as being unpatentable over Izumi in view of Mayer (U.S. Patent No. 6,333,275). Although Applicants respectfully disagree with the Examiner's assertions, Applicants have amended independent Claim 15 to expedite examination and allowance of the present application.

Amended independent Claim 15 further defines the fluid feeds of the piping system. That is, the first fluid feed is connected at a source end to a source of a first etching gas, and the second fluid feed is connected at a source end to a source of a second etching gas. The first and second fluid feeds are configured to separately provide the first and second etching gases to the etching chamber via the piping system. The cited references fail to disclose or to suggest an installation having a piping system as defined in amended Claim 15.

Discussion of Tohru

Tohru does not disclose or suggest a first feed to provide a first etching fluid to the reaction chamber, and a second fluid feed, separate from the first fluid feed, to provide a second etching fluid to the reaction chamber. Instead, Tohru uses a single introduction tube 17 to supply the etching gases CF₄ and O₂ to the "auxiliary" chamber 15 and from there to the quartz tube or

This is a class analysis of the prior art shown in Figures 1

Applicants would like to draw the Examiner's attention to page 1 of the present specification, where Tohru is discussed. For example, the specification explains on page 1, lines 24-31, that:

[i]n EP 0.335.313-A-2 mentioned above, a method and device are described, wherein two etch gases from a first and a second source are being supplied through a common conduit to an auxiliary chamber. In this auxiliary chamber a plasma is generated and this is transferred to the reactor. The etching gases used are CF₄ and O₂. It is of importance that both etching gases are being supplied simultaneously and preferably continuously from the source through the auxiliary chamber to the process chamber. Such a method does not give a solution for the problem mentioned above i.e. the aggressivety of a mixture of HF and another etchant and/or catalyst such as acetic acid, formic acid or water. (Emphasis added.)

Thus, the present specification already emphasizes the problems associated with the structure disclosed in Tohru.

While the Examiner states that "Etchant 10A and catalyst 10B are positioned within a second path," this finding is factually incorrect. In fact, these are deposition gases provided separately from the etchant gases. After etching, subsequent reduced pressure CVD uses He and SiH₄ gas to deposit a polysilicon film on the silicon layer. *See, e.g.*, Col. 6, lines 49-51. The deposition gases He and SiH₄ are supplied via a separate tube, as shown in Figure 1. Thus Tohru contains no suggestion to separately provide two etchant gases.

In view of the foregoing, Applicants respectfully submit that Tohru does not disclose or suggest each and every limitation recited in amended Claim 15. Accordingly, Applicants submit that the subject matter of amended Claim 15 is patentably distinguished over Tohru, and respectfully request the Examiner to pass amended Claim 15 to allowance.

Discussion of Izumi

Izumi does not disclose or suggest that an inlet of an auxiliary chamber is in communication with a first fluid feed, which is connected to a source of etching gas. If it is

etching gas, the Pappier line, it is connected directly to the gas source and has nothing to do with the auxiliary chamber.

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converts liquid alcohol to vapor. Rather than having an etch gas source connected to a bubbler inlet, as recited in Claim 15, the bubbler 32 of Izumi is itself the source of alcohol vapor.

The foregoing discussion shows that Izumi has a structure that is very different from the structure recited in amended Claim 15. Thus, Applicants respectfully submit Izumi does not disclose or suggest each and every limitation recited in amended Claim 15. Accordingly, Applicants submit that the subject matter of amended Claim 15 is patentably distinguished over Izumi, and respectfully request the Examiner to pass amended Claim 15 to allowance.

The Examiner cites Mayer as disclosing plastics such as PVDF for use in corrosive environments. The Examiner, however, does not cite Mayer for disclosing a particular structure of the piping system. Applicants submit that Mayer fails to supply the deficiencies of Izumi.

Because Claims 16-24 depend from independent Claim 15, pursuant to 35 U.S.C. § 112, ¶ 4, they incorporate by reference all the limitations of the claim to which they refer. It is therefore submitted that Claims 16-24 are in condition for allowance at least for the reasons expressed with respect to the respective independent claim, and for their other inventive features. Thus, Applicants respectfully request the Examiner to pass Claims 15-24 to allowance.

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CONCLUSION

Applicants have endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. In light of the above remarks, reconsideration and withdrawal of the outstanding rejections is specifically requested.

Any claim amendments which are not specifically discussed in the above remarks are not made for patentability purposes, and it is believed that the claims would satisfy the statutory requirements for patentability without entry of such amendments. If the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference, the Examiner is respectfully requested to initiate the same with the undersigned.

Respectfully submitted,

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